

## IRRIGATION METHODS IN ITALY

Irrigation, by English speaking people, has been practiced in this country little more than 50 years, while in Italy it has been practiced for more than 500 years. It is, therefore, natural that Italian experience should be able to show much of value to American irrigators. For the purpose of determining what could be learned in that country which could be applied to our own problems, Dr. Elwood Mead, chief of irrigation and drainage investigations of the office of experiment stations, U. S. department of agriculture, spent the summer of 1903 in the valley of the Po.

A partial report of Dr. Mead's observations has just been issued by the department of agriculture as Bulletin 144 of the office of experiment stations. No attempt was made to make this an exhaustive monograph upon irrigation in Northern Italy, but the study was made solely from the standpoint of obtaining suggestions for American irrigation practice.

Contrary to a very common opinion, the valley of the Po is not an arid region. The annual rainfall at Milan, the chief city of Lombardy, is more than 40 inches, greater than that of Cincinnati, O., or Omaha, Neb., both of which are situated in regions where irrigation is seldom considered in connection with agriculture. The climate of Lombardy is not different from that of the Mississippi valley, and the crops raised, with few exceptions, are the same. Notwithstanding this large rainfall and the fact that crops can be successfully raised without irrigation, the plains of Lombardy are a network of canals and drains.

To secure the construction of one of these canals, the city of Milan gave a bonus of \$500,000. This canal cost \$6,000,000, or \$37.50 for each acre of land that can be served by it. It supplies water to 8000 farmers, who pay from \$1 to \$2 per acre per year for water. Some of this land supports as many as 800 people per square mile, and has increased in value since the building of the canal from 60 to 100 per cent, land which formerly sold for \$100 being worth now \$160 to \$200 per acre.

**The Priceless Sewage.**  
Under the Vettabba canal which uses the sewage from Milan, meadows yield an annual crop worth \$300 per acre. Some of the fields have been used for meadows continuously for 700 years. Annual rentals for these lands are more than \$25 per acre. Sewage has been used on these fields for centuries without injury to the lands or to the healthfulness of the community.

This great rise in land values and increase in productivity of lands, due to irrigation, in a region with a rainfall equal to that of the southern half of the Mississippi valley and a climate no more favorable to crop production, leads to the conclusion that in irrigation this section has a means of at least doubling the present yield from its lands.

In Piedmont, which has an annual rainfall of more than 30 inches, or about the same as Eastern Nebraska and Kansas, the Italian government has built nearly a thousand miles of canals and expended about \$20,000,000 for irrigation works. The annual income from the government canals in this province is nearly \$600,000.

Pumping plants have been established to raise the water to lands above the government canals. One of these was put in at an expense of \$47 per acre for the lands irrigated, in addition to which the farmers are required to pay the annual maintenance expense and \$32 per year for a cubic foot of water per second. Irrigated land supplied by this pumping plant is worth three times as much as unirrigated land adjoining.

Under another pumping plant the annual expense to the farmers is \$5.80 per acre, in addition to \$10 per year for annual expense to the farmers of \$5.80 per acre, in addition to nearly \$16 per acre. And this also in a region where crops can be raised successfully without irrigation.

The Italian government disposes of water directly to farmers at retail in some sections, and in others sells it to co-operative associations of farmers.

One such association has 14,000 members, operates 9600 miles of ditches, has 266 miles of telephone and telegraph lines, supplies water to 141,000 acres, and does an annual business of \$600,000. Eighty water masters are employed by the association to distribute the water to its members. The farmers in this association pay from \$1.60 to \$9 per acre per year for water, according to the distance of their land from the main canal and the crops raised.

In addition to giving information as to the organization of the industry in Italy, the bulletin describes the principal canals of Lombardy and Piedmont, and gives details as to the structures for diverting water and carrying it over or under the streams or canals crossed. Drawings and photographs of a large number of structures are given.

Italian engineers have given more attention to the measurement of water than any other body of men in the world. The bulletin describes the methods of measurement of water in use along the Po, and gives a general discussion of the subject of water measurement.

The most striking points brought out by the report are the large expenditures for irrigation in a region where crops can be raised without it, the enduring and expensive nature of the structures, and the efficient co-operation of irrigators in using water and in canal management. Along each of these lines Italian experience is full of suggestion for those interested in American irrigation.

This bulletin can be secured on application to the director of the office of experiment stations, or the Chief of the division of publications, of the U. S. department of agriculture.

### November Arena.

No American review is giving more attention to the able discussion of live questions which appeal to men and women of conscience than the Arena. The November number offers a case in point. Here is found a masterly argument from Chief Justice Walter Clark, LL. D., of the supreme bench of North Carolina, advocating "The Election of Federal Judges by the People." Another paper of great value to all persons interested in municipal affairs is entitled "Glasgow's Great Record." It is the most complete and comprehensive magazine contribution yet published, dealing in an authoritative way with the actual results of fourteen years of municipal ownership and operation of the streetcar service of Glasgow. "The United States of South America, a Dream of Empire," is a fascinating speculative paper from the brilliant pen of Dr. Charles Frederick Holder, LL. D. "The Philippine Insurrection. Why?" by Arthur Llewellyn Griffiths, A. B., founder of the Moro system of industrial training of the Sulu Archipelago, is a thoughtful and suggestive presentation of the Philippine situation as seen through the spectacles of an Imperialist. "Our Legal Machinery and Its Victims" is the title of a powerful essay abounding in facts and statistics and rich in thoughtful suggestions for the improvement of our present penal system and the reduction of crime through a broader and more statesmanlike treatment of the subject.

### Great Gamblers.

The greatest gamblers in the world are the Spaniards and their descendants. The Kanaka tribes of the south seas, who push the hazard of gambling beyond the grave, stake their bones on a last throw of the cowrie shells, which they use as dice. Among African tribes the Hausas are nearly as great at games of chance as the Chinese.

### Long Creek Suicide.

Died, at Long Creek Saturday night at midnight, Wilhelm Weichel, who attempted suicide last Tuesday evening, October 25. He was under the able care of Dr. Roberts, but the shot was fatal. Interment was held Sunday in the Long Creek cemetery. — Monument Enterprise.

## Uncle Sam says it's all right

Uncle Sam, in the person of ten of his government officials, is always in charge of every department of our distillery. During the entire process of distillation, after the whiskey is stored in barrels in our warehouses, during the seven years it remains there, from the very grain we buy to the whiskey you get, Uncle Sam is constantly on the watch. We dare not take a gallon of our own whiskey from our own warehouse unless he says it's all right. And when he does say so, that whiskey goes direct to you, with all its original strength, richness and flavor, carrying a UNITED STATES REGISTERED DISTILLER'S GUARANTEE OF PURITY and AGE, and saving the dealers' enormous profits. That's why HAYNER WHISKEY is the best for medicinal purposes. That's why it is preferred for other uses. That's why we have over half a million satisfied customers. That's why YOU should try it. Your money back if you're not satisfied.



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### COMING EVENTS.

November 14—Annual meeting Oregon Miners' Association, Portland.  
November 15-16—State Bar Association, Portland.  
November 16-26—National Grange meeting, Portland.  
November 15-18—National Irrigation Association, El Paso, Texas.  
November 24—Thanksgiving in the United States, Porto Rico, Hawaii, Guam and the Philippines.  
November 25-27—Oregon Y. M. C. A. state meeting, Salem.  
November 25-26—State convention county clerks and recorders, Portland.  
December 12-15—Oregon Good Roads Association, Salem.  
January 30—Inland Empire Sunday School Institute, Pendleton.  
June 1, 1905—Opening Lewis and Clark exposition.

### Not a Sick Day Since.

"I was taken severely sick with kidney trouble. I tried all sorts of medicines, none of which relieved me. One day I saw an ad of your Electric Bitters and determined to try that. After taking a few doses I felt relieved, and soon thereafter was entirely cured, and have not seen a sick day since. Neighbors of mine have been cured of rheumatism, neuralgia, liver and kidney troubles and general debility." This is what B. F. Bass of Fremont, N. C., writes. Only 50c at Tallman & Co.'s druggists.

### Lewiston's New Business House.

John P. Vollmer is planning to build a large business block on Main avenue, extending through to D street, either this winter or next spring. Mr. Vollmer owns a piece of property between Third and Fourth streets, 50 feet square. It is occupied now by two frame buildings. He proposes to put up a modern brick two or three stories high and costing about \$15,000. —Lewiston Tribune.

### A Runaway Bicycle.

Terminated with an ugly cut on the leg of J. B. Orner, Franklin Grove, Ill. It developed a stubborn ulcer unyielding to doctors and remedies for four years. Then Bucklen's Arnica Salve cured. It's just as good for burns, scalds, skin eruptions and ulcers. 25c at Tallman & Co.'s drug



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